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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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03/25/2004

Jun Moroo

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EXAMINER

THOMPSON, JAMES A

ART UNIT

PAPER NUMBER

2625

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/808,563	<b>Applicant(s)</b> MOROO ET AL.	
	<b>Examiner</b> James A. Thompson	<b>Art Unit</b> 2625	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 October 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,4-7,10-13 and 16-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,4-6 and 21 is/are allowed.
- 6) ☒ Claim(s) 7,10-13,16-20 and 22-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                      |                                                                   |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____                                                          | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 09 October 2009 has been entered.

***Response to Arguments***

2. Applicant's arguments, see pages 7-9, filed 09 October 2009, with respect to the rejections of claims 1, 4-7, 10-13, 16-18, 21, 22 and 24 under 35 U.S.C. 103(a) have been fully considered and are persuasive. The rejections of claims 1, 4-7, 10-13, 16-18, 21, 22 and 24 under 35 U.S.C. 103(a) have been withdrawn. Examiner agrees with Applicant that the present amendments to independent claims 1, 7, 13, 21, 22 and 24 overcome the previously cited prior art references. Further, Examiner has discovered no additional prior art which fully teach each and every limitation of any of claims 1, 7, 13, 21, 22 and 24. However, independent claims 19, 20 and 23 have not been amended are fully taught by the previously cited prior art references.

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3. Applicant's arguments filed 09 October 2009 have been fully considered but they are not persuasive.

*Applicant argues* that Reed (US-2002/0164052) does not teach "a code embedding unit that ... by changing at least a feature index of a first color component of a block of the pair of blocks based on a magnitude relationship between the feature indices of color components related to the pair of blocks," as recited in claim 19.

*Examiner replies* that, as clearly set forth in the office action of 09 June 2009, claim 19 is rejected not merely by Reed, but by the combination of Reed and Matsui (US-7,523,311). Reed teaches a code embedding unit that embeds a code into blocks of image data [see para. 42, lines 1-5 of Reed] by changing at least a feature index of a first color component based on a magnitude relationship between the feature indices of color components related to the blocks [see figure 14 and para. 74 of Reed]. The watermark is embedded by tweaking the spot color and creating a corresponding negative tweak in the black color. Thus, the feature index of a first color component (level of spot color) is changed based on a magnitude relationship between the feature indices of color components (such as the black color component) related to the blocks.

Matsui teaches embedding code into pairs of blocks of image data [see column 1, line 64 to column 2, line 5 and column 5, lines 31-35 of Matsui]. The watermark embedding is performed with respect to the relationship between two adjoining blocks.

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Thus, by combination, one of ordinary skill in the art would perform watermarking in pairs of blocks, as taught by Matsui. Therefore, the feature indices of the first and second color components are of the pair of blocks. The suggestion for doing so would have been that watermarking with respect to changes in adjoining blocks is computationally simpler than using more blocks or non-adjoining blocks. Therefore, claim 19 is fully taught by the combination of Reed and Matsui.

Applicant argues with respect to similar language in claims 20 and 23. Therefore, for reasons set forth above with respect to claim 19, claims 20 and 23 are also taught by the combination of Reed and Matsui.

#### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claim 19 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

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Claim 19, as presently recited, is overly broad since there is only one unit which comprises the image data processing apparatus. Thus, the code embedding unit is the image data processing apparatus. So, claim 19 merely recites what the apparatus does, rather than what the apparatus is. The steps performed by the code embedding unit/image processing apparatus can be performed using a variety of different structural configurations, not all of which are disclosed in Applicant's disclosure. Thus, claim 19 is overly broad and not fully enabled by Applicant's disclosure.

***Claim Rejections - 35 USC § 101***

6. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7. Claims 7 and 10-12 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Supreme Court precedent<sup>1</sup> and recent Federal Circuit decisions<sup>2</sup> indicate that a statutory "process" under 35 U.S.C. 101 must (1) be tied to another statutory category (such as a particular apparatus), or (2) transform underlying subject matter (such as an article or material) to a different state or thing.

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<sup>1</sup> *Diamond v. Diehr*, 450 U.S. 175, 184 (1981); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972); *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876).

<sup>2</sup> *In re Bilski*, 88 USPQ2d 1385 (Fed. Cir. 2008).

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Claim 7 recites an image data processing method. However, the method comprises a series of digital data processing steps which simply manipulate digital data. The method is not tied to any particular apparatus, nor does the method transform any underlying subject matter to a different state or thing. The method merely performs computations upon digital data resulting in other digital data. There is no transformation of an article or material to a different state or thing. Thus, claim 7 is not a statutory process.

Claims 10-12 each ultimately depend from claim 7, and are therefore also rejected under 35 U.S.C. 101.

8. Claims 13 and 16-18 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 13 recites a "computer-readable recording medium storing a program that, when executed, makes a computer perform a process comprising" a series of steps. However, the program is not necessarily a computer-executable program. The program could, for example, be executed manually by an operator, thus making the computer perform the recited process. Thus, claim 13 could simply be a program listing *per se* stored on a computer disk, and is therefore non-statutory.

Claims 16-18 each ultimately depend from claim 13, and are therefore also non-statutory.

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9. Claim 20 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 20 recites an image data processing method. However, the method comprises a series of digital data processing steps which simply manipulate digital data. The method is not tied to any particular apparatus, nor does the method transform any underlying subject matter to a different state or thing. The method merely performs computations upon digital data resulting in other digital data. There is no transformation of an article or material to a different state or thing. Thus, claim 20 is not a statutory process.

10. Claim 22 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 22 recites an image data processing method. However, the method comprises a series of digital data processing steps which simply manipulate digital data. The method is not tied to any particular apparatus, nor does the method transform any underlying subject matter to a different state or thing. The method merely performs computations upon digital data resulting in other digital data. There is no transformation of an article or material to a different state or thing. Thus, claim 22 is not a statutory process.

11. Claim 23 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim



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23 recites an image data processing method. However, the method comprises a series of digital data processing steps which simply manipulate digital data. The method is not tied to any particular apparatus, nor does the method transform any underlying subject matter to a different state or thing. The method merely performs computations upon digital data resulting in other digital data. There is no transformation of an article or material to a different state or thing. Thus, claim 23 is not a statutory process.

12. Claim 24 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 24 recites a "computer-readable recording medium storing a program that, when executed, makes a computer perform" a series of steps. However, the program is not necessarily a computer-executable program. The program could, for example, be executed manually by an operator, thus making the computer perform the recited process. Thus, claim 24 could simply be a program listing *per se* stored on a computer disk, and is therefore non-statutory.

***Claim Rejections - 35 USC § 103***

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at

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the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**14. Claims 19, 20 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reed (US-2002/0164052) and Matsui (US-7,523,311).**

**Regarding claim 19:** Reed discloses an image data processing apparatus (para. 33 of Reed) comprising: a code embedding unit that embeds a code into blocks of image data (para. 42, lines 1-5 of Reed) by changing at least a feature index of a first color component based on a magnitude relationship between the feature indices of color components related to the blocks (figure 14 and para. 74 of Reed - *watermark embedded by tweaking spot color and creating corresponding negative tweak in black color*).

Reed does not disclose expressly that the code is embedded into *pairs* of blocks of image data; and that the feature indices of the first and second color components are of the pair of blocks.

Matsui discloses embedding code into pairs of blocks of image data (column 1, line 64 to column 2, line 5 and column 5, lines 31-35 of Matsui - *watermark embedding performed with respect to relationship between two adjoining blocks*).

Reed and Matsui are combinable because they are from the same field of endeavor, namely digital image data watermarking. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to perform watermarking in pairs of blocks, as taught by Matsui. Thus, by combination with

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Reed, the feature indices of the first and second color components are of the pair of blocks. The suggestion for doing so would have been that watermarking with respect to changes in adjoining blocks is computationally simpler than using more blocks or non-adjoining blocks. Therefore, it would have been obvious to combine Matsui with Reed to obtain the invention as specified in claim 19.

**Regarding claim 20:** Reed discloses an image processing method comprising: embedding a code into blocks of image data (para. 42, lines 1-5 of Reed) by changing at least a feature index of a first color component of a block based on a magnitude relationship between the feature indices of the first color component and second color component which differs from the first color component (figure 14 and para. 74 of Reed - *watermark embedded by tweaking spot color and creating corresponding negative tweak in black color*).

Reed does not disclose expressly pairing blocks of image data; that the code is embedded into the paired blocks; and that the feature indices of the first and second color components are of the paired blocks.

Matsui discloses pairing blocks of image data and embedding code into the paired blocks (column 1, line 64 to column 2, line 5 and column 5, lines 31-35 of Matsui - *watermark embedding performed with respect to relationship between two adjoining blocks*).

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Reed and Matsui are combinable because they are from the same field of endeavor, namely digital image data watermarking. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to perform watermarking in pairs of blocks, as taught by Matsui. Thus, by combination with Reed, the feature indices of the first and second color components are of the pair of blocks. The suggestion for doing so would have been that watermarking with respect to changes in adjoining blocks is computationally simpler than using more blocks or non-adjoining blocks. Therefore, it would have been obvious to combine Matsui with Reed to obtain the invention as specified in claim 20.

**Regarding claim 23:** Reed discloses a method comprising: embedding a code into blocks of image data (para. 42, lines 1-5 of Reed) by changing at least one feature index of a first color component of a block based on a magnitude relationship between the feature indices of the first color component and second color component which differs from the first color component (figure 14 and para. 74 of Reed - *watermark embedded by tweaking spot color and creating corresponding negative tweak in black color*).

Reed does not disclose expressly pairing blocks of image data; that the code is embedded into the paired blocks; and that the feature indices of the first and second color components are of the paired blocks.

Matsui discloses pairing blocks of image data and embedding code into the paired blocks (column 1, line 64 to column 2, line

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5 and column 5, lines 31-35 of Matsui - *watermark embedding performed with respect to relationship between two adjoining blocks*).

Reed and Matsui are combinable because they are from the same field of endeavor, namely digital image data watermarking. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to perform watermarking in pairs of blocks, as taught by Matsui. Thus, by combination with Reed, the feature indices of the first and second color components are of the pair of blocks. The suggestion for doing so would have been that watermarking with respect to changes in adjoining blocks is computationally simpler than using more blocks or non-adjoining blocks. Therefore, it would have been obvious to combine Matsui with Reed to obtain the invention as specified in claim 23.

***Allowable Subject Matter***

**15. Claims 1, 4-6 and 21 are allowed. Claims 7, 10-13, 16-18, 22 and 24 contain allowable subject matter, but are rejected above for reasons other than prior art.**

The following is an examiner's statement of reasons for allowance and reasons for indicating allowable subject matter:

Independent claim 1 recites an image data processing apparatus for embedding coded data. The apparatus comprises:

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- (1) a dividing unit that divides image data into a plurality of blocks,
- (2) a block extracting unit that extracts a pair of blocks from the divided blocks,
- (3) an index extracting unit that extracts two feature indices of a first color component and two feature indices of a second color component which differs from the first color component from the pair of blocks, one of the two feature indices being extracted from one of the pair of blocks and the other of two feature indices being extracted from the other of the pair blocks,
- (4) a code embedding unit that embeds a code into the pair of blocks, by changing at least one of the extracted two feature indices of the first color component of the pair of blocks based on a magnitude relationship between the extracted two feature indices of the second color component of the pair of blocks and a value determined by at least one of the extracted two feature indices of the second color component.

The closest prior art discovered is the previously cited combination of Reed and Matsui, also cited above in the rejections of claims 19, 20 and 23. The combination of Reed and Matsui teaches (1) and (2), as well as elements of (3) and (4). However, the combination of Reed and Matsui does not teach that (a) two feature indices are extracted for the first color component and two feature indices are extracted for the second

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color component, (b) one of the two feature indices are extracted from one of the pair of blocks and the other of the two feature indices is extracted from the other of the pair of blocks, and (c) the two feature indices of the first color component are based on a magnitude relationship between the two feature indices of the second color component.

Examiner has not discovered this particular combination of features in the prior art, either in a single reference or in an obvious combination of references. Accordingly, claim 1 is deemed to be allowable.

Claims 4-6 each ultimately depend from claim 1, and are therefore deemed to be allowable at least due to their respective dependencies from an allowable claim.

Independent claim 7 recites an image data processing method which contains the allowable subject matter found in claim 1. Thus, claim 7 is deemed to contain allowable subject matter for the reasons set forth for claim 1. However, claim 7 is rejected above under 35 U.S.C. 101, and is therefore not presently allowable. It could, however, be deemed allowable if the issues with respect to 35 U.S.C. 101 are adequately addressed.

Claims 10-12 each ultimately depend from claim 7 and are therefore also deemed to contain allowable subject at least due to their respective dependencies from claim 7.

Independent claim 13 recites a computer-readable medium that stores a program that, when executed by a computer, makes a computer perform a process. The process recited therein contains

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the allowable subject matter found in claim 1. Thus, claim 13 is deemed to contain allowable subject matter for the reasons set forth for claim 1. However, claim 13 is rejected above under 35 U.S.C. 101, and is therefore not presently allowable. It could, however, be deemed allowable if the issues with respect to 35 U.S.C. 101 are adequately addressed.

Claims 16-18 each ultimately depend from claim 13 and are therefore also deemed to contain allowable subject at least due to their respective dependencies from claim 13.

Independent claim 21 recites an embedding unit which includes within it a series of units. The embedding unit of claim 21 contains the same allowable subject matter found in claim 1. Therefore, claim 21 is also deemed to be allowable.

Independent claim 22 recites a method of embedding a code into an image data in an image data processing method which contains the allowable subject matter found in claim 1. Thus, claim 22 is deemed to contain allowable subject matter for the reasons set forth for claim 1. However, claim 22 is rejected above under 35 U.S.C. 101, and is therefore not presently allowable. It could, however, be deemed allowable if the issues with respect to 35 U.S.C. 101 are adequately addressed.

Independent claim 24 recites a computer-readable medium that stores a program that, when executed by a computer, makes a computer perform embedding a code into image data. The process recited therein contains the allowable subject matter found in claim 1. Thus, claim 24 is deemed to contain allowable subject



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matter for the reasons set forth for claim 1. However, claim 24 is rejected above under 35 U.S.C. 101, and is therefore not presently allowable. It could, however, be deemed allowable if the issues with respect to 35 U.S.C. 101 are adequately addressed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Thompson whose telephone number is (571)272-7441. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward L. Coles can be reached on 571-272-7402. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/James A Thompson/  
Primary Examiner  
Art Unit 2625

23 October 2009